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ZOOLOGY.

A Deformity Inherited.—An account is given in a medical journal by Dr. M. L. Holbrook of a case of deformity transmitted through three generations to both sexes. It appeared first in a person named M. B. Wadsworth, born in Connecticut about the year 1800. It consisted in the absence of the three middle metacarpal bones and phalanges of each hand, and also the absence of the three middle corresponding bones, the metatarsal and phalanges of each foot, together, of course, with the absence of the toes and fingers and that part of the foot and hand belonging to these bones. The remaining parts lay nearly side by side like fingers, and the movement was partly from side to side like claws, rather than a grasping movement, like that of a perfect hand. This man was very able bodied, and worked at farming and laying stone wall, and lived to be about sixty years of age. He married, moved to Ohio and being a neighbor of my parents, I knew him well. He had two children, S. and W. with whom I was intimate, and both inherited the deformity. In the oldest one, however, there seemed to be an attempt on the part of nature to restore the missing parts by producing one double finger on each hand, and a foot partly restored, but the restoration was so imperfect as to really make the deformity worse. This son died in early manhood and left no family. The second son, W., was nearly like the father in both hands and feet. He is still living, married, and has had four children. The first is a man, grown and is not deformed. The second, a girl, now about eighteen years old, is as bad as the father. The third, a son, not deformed. The fourth, a daughter, now dead, was like her father.

As to the cause of this strange deformity we have no absolute knowledge. One story current in the family is that the mother of the original case was frightened at a lobster before the child was born. There is another family belief concerning the cause that is worth relating. It is that the mother received a severe nervous shock from a vicious horse, which had chased her with open mouth and tried to get hold of her with his teeth after she had taken refuge under a wagon. The mental shock may have produced an arrest of development in the unborn child. (*Herald of Health*, Oct., 1892).

Preliminary Note on the Relationship of the Species Usually United under the Generic Name Sebastodes.—On the Pacific coast of temperate North America, a large number of species of viviparous Scorpaenidae are found. They range all the way from tide water to a depth of 1600 feet, from Cerros Island to Alaska. They are most abundant on the coast of California, about 30 species being known from San Diego and a like number from Monterey. In size, they vary from 1 lb. to 30 lbs.

The species have been variously grouped as forming one genus by Jordan & Gilbert, as forming two by Jordan, and as forming four by Gill. Jordan & Gilbert, in their Synopsis, arranged the species known to them according to the greater or less prominence of the spiniferous ridges of the skull. In examining the skulls of a number of them, one of us several years ago, noticed that in a number of species, the parietals meet over the supra-occipitals, while in others they are separated, and the supra-occipital is exposed above for its whole length.

A more recent examination of a larger series of skulls, tended to show that, if we admit the relationships pointed out by Jordan & Gilbert, this greater or less development of the parietals is of no significance. A more thorough study has, however, convinced us that the species with united parietals are related and that the relationships pointed out by Jordan & Gilbert are at fault.

The value placed on such a cranial character as the union or non-union of the parietals need not be defended here. It may only be mentioned that in *mystinus* which for other reasons we considered the hub to which the other groups proposed here are related as spokes, the parietals are united in 8 out of 10 specimens. The variation of this character in *mystinus* but confirmed our view that it is the radiating point.

Leaving the parietals, the next prominent characters are the development or non-development of certain cranial spines and ridges. These spines are found in all stages from minute points to comparatively huge spines. The variation in size for this reason, if there were no other objections, cannot be utilized for determining generic relationship. The spines are very regularly arranged and in any given species certain ones are always present. (Individual variations should of course be expected in this character as in every other if a sufficient number of specimens are examined). The constancy of the presence of certain spines in a given species warrants the use of the presence or absence of these spines in the different species in determining their

true relationship. This relationship is usually borne out by a number of subsidiary characters. Considering the constancy of the spines, reinforced by subsidiary characters, we have divided the species usually united under the generic name *Sebastodes* as follows:—

a. Parietals meeting above the supra-occipital.

b. Jawsequal; head narrow above; high and prominent cranial ridges ending in spines; preocular, supraocular, tympanic and parietals present. Scales usually very strongly ctenoid; accessory scales numerous; suborbital stay directed obliquely downward and backward; second anal spine much heavier than, and at least as long as the third; body short and deep, back arched; mouth very large; head heavy. All known species with cross bands.

SEBASTICHTHYS Gill.

nigrocinctus, serriceps, rubrivinctus, diploproa.*

bb. Lower jaw much projecting; head broad, the skull usually convex; cranial ridges when present low; gill-rakers very long and slender; scales usually smooth, few if any accessory scales. Suborbital stay little if at all oblique.

c. Parietal ridges ending in spines; preocular, supraocular and tympanic spines well developed. Peritoneum black.

d. Postocular spine present. Second anal spine usually stronger and longer than third. Symphyseal knob strong, projecting forward. Dorsal low. (Peritoneum black, mandibles and maxillary scaled.)

ACUTOMENTUM¹ E & B.

¹Type *A. ovalis* (Ayres).

*melanostomus, ovalis, rufus, *alutus, macdonaldi* n. sp. nov. =
S. proriger E. & G. not of J. & G.

dd. Postocular spine not developed.

We have not been able to examine the two species (*entomelas* and *atrovirens*) and cannot vouch for their position.

cc. Parietal ridges not ending in spines.

e. Preocular spines well developed. Supraocular and tympanic spines sometimes present. Interorbital wide, convex. Peritoneum black. Approximated edges of sub-opercle and inter-opercle frequently ending in spines. PRIMOSPINA² E. & B.

²Type *P. mystinus* (J. & G.).

The only species (*mystinus*) is the most variable species of the group.

ee. Preocular without spine, skull smooth, without spines.

Peritoneum usually white

SEBASTOSOMUS Gill.

*flavidus, serranoides, melanops, *ciliatus.*

aa. Parietals separated by the supra-occipital.

f. Cranium with parietal ridges only. Lower jaw much projecting, entering the profile; a prominent symphyseal knob directed forward. Head broad, convex. Interorbital convex, nearly smooth.

SEBASTODES Gill.

paucispinis, goodei.

*Species marked with an asterisk have not been examined in reference to the characters utilized.

ff. Cranium with many ridges, all ending in spines.

g. Postocular and tympanic spines both present. Interopercle and subopercle without spines. Lower pectoral rays normal.

h. Coronal spines; nuchal spines, a spine below, another in front of eye. * *matzubarae* with this species we are not acquainted.

hh. No coronal spines

SEBASTOMUS Gill.

miniatus, pinniger, levis, aereus, constellatus, umbrosus*, rosaceus, rhodochloris*, gilli*, rupestris*, eos, chlorostictus*, ruber* rufus.*

gg. Postocular spine wanting.

i. Coronal spines none.

PTEROPODUS E. & B.¹

Species with normal pectoral rays, (living off the bottom) *saxicola*, proriger†*, brevispinis*, elongatus, sinensis.*

Species with lower pectoral rays thick (living on the bottom) *zacentrus*, maliger, caurinus, vexillaris, rastrelliger, nebulosus, carnatus, chrysomelas.*

ii. Coronal spines present.

AUCTOSPINA E. & B.²

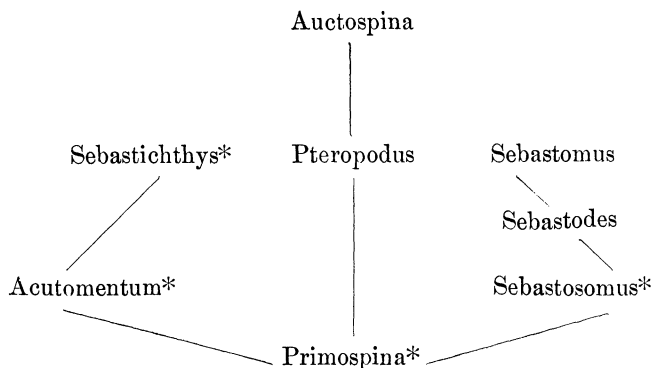
aurora, auriculatus.*

† The specimen described by E. & E., Proc. Cal. Acad. Sci. (2) III, 15, 1890, is a species distinct from *proriger*.

The inter-relationship of these genera is complex. It may be represented by the following diagram where the genera with the united parietals are followed by an asterisk.

¹Type *P. maliger* (J. & G.).

²Type *A. auriculatus* (Girard).



A revision of the Pacific Scorpaenidæ will be included in my "Viviparous fishes of the Pacific Coast."—C. H. EIGENMANN and C. H. BEESON.

Batrachians of British India.—The total number of Batrachians known at the present time from British India, including the Malay peninsula, comprises 147 species; of these, the Indian Museum possesses specimens of 103 distributed as follows; Ecaudata 99, Caudata 1, Apoda 3. (Selater's List of Batrachians of the Indian Museum, 1892).

Washington and British Columbian Ornithology.—A resumé of the birds observed in British Columbia and Washington during the spring and summer 1892, is given by Mr. S. N. Rhoads in the *Proceeds. Phila. Acad.*, 1893. To the combined lists of Mr. Chapman and Mr. Fannin, the author adds 21 species that came under his own observation, making the list of species now known from that region number 326. Descriptions of 11 new species observed appear in the *Auk* for January, 1893. Four specimens of a new variety of *Parus hudsonicus* were obtained in British Columbia, near Field. The new form, *P. hudsonicus columbianus*, is larger and darker than *hudsonicus*, with a much larger bill, and with the throat patch jet black instead of brownish-black.

Zoological News. Hemichorda.—Prof. W. E. Ritter presents in *Zoe*³ a popular study of *Balanoglossus* in which few new facts concerning the larvæ are brought out. Professor Ritter puts in a request for evidence of the existence of *Balanoglossus* on the Pacific coast.

³*Zoe* iii, 187, 1892.

Fishes.—Evermann has revised⁴ the North American Suckers of the genus *Pantosteus* and recognizes the species *plebeius*, *virescens*, *generosus*, *discobolus* and a new species *jordani* from the upper Missouri Basin.

Reptiles and Batrachia.—Cope catalogues⁵ eight species of Batrachia, 5 of turtles, 8 of lizards and 13 of snakes collected in northwestern Texas. The region appears to be interesting as the meeting ground for several geographical districts. The absence of *Sceleporeus* from the collections is due to the absence of timber.

Davenport records the persistence⁶ of the right root of the subvertebral artery in an alligator 28 cm. long, and figures two cases of the persistence of the ductus botalli in the same animal.

Mammalia.—At a meeting of the London Zoological Society, M. Tegetmeier exhibited the feet of some Australian rabbits to show an adaptation which is gradually being brought about to a new mode of locomotion. The rabbits are becoming climbers, and often ascend trees in their search for food; their feet are growing sligher and the claws longer and sharper. (*Revue Scientifique*, Mar. 1893.)—Mr. G. S. Miller reports that *Zapus insignis*, hitherto known only from New Brunswick and Nova Scotia, is locally common in the eastern United States. As the original description was based on three specimens faded by grease and age, he redescribes the species in the *Proceeds. Biol. Soc. Washington*, April, 1893.

Notes on the Classification of the Cryptodira.—In the June number of the *AMERICAN NATURALIST*, 1890, I have given a classification of the Testudinata, distinguishing four sub-orders—*Amphichelydia*, *Pleurodira*, *Cryptodira*, *Trionychia*.

To-day I shall give a more detailed classification of the living forms of the Testudinata belonging to the Cryptodira.

CRYPTODIRA.

No free nasals, a parieto-squamosal arch present or absent; descending processes of prefrontals connected with vomer; stapes in an open groove, of the quadrate or covered by the quadrate behind; pterygoids narrow in the middle, without wing-like lateral expansions, separating

⁴Bull. U. S. Fish Comm. 1892, p. 51, 1893.

⁵Proc. Phila. Acad. 1892, p. 331.

⁶Bull. Mus. Comp. Zoology xxiv, no. 2, 1893.

quadrate and basisphenoid; epipterygoid free or not free; dentary bones united. Cervical vertebræ with rudimentary transverse processes in front of vertebra; the posterior cervicals with double articular faces; sacral ribs well-developed and connected with centrum and neuroids. Pelvis free from plastron and carapace. Epiplastra in contact with hyoplastra; entoplastron oval, rhomboidal or T-shaped, a more or less complete series of peripherals more or less connected with the ribs.

I.—CHELONIOIDEA.

A parieto-squamosal arch; no foramen palatinum between palate and maxillary; articular faces between the sixth and seventh cervical plane; nuchal with a distinct process on the lower side for the articulation with the neuroid of the eighth cervical; no lateral processes of nuchal. One biconvex cervical vertebra.

1. *Cheloniidæ*.

Skull with descending processes of parietals; limbs paddle-shaped; claws one or two. *Chelonia*, *Thalassochelys*, *Caretta*, *Lepidochelys*.

2. *Dermochelyidæ*.

Skull without descending processes of parietals; limbs paddle-shaped; no claws. Bony carapace dissolved into numerous mosaic-like pieces. *Dermochelys*.

II.—CHELYDROIDEA.

No parieto-squamosal arch; a foramen palatinum between palate and maxillary; articular faces between the sixth and seventh cervicals not plane; nuchal without lower process, but with more or less strong lateral process underlying the peripherals; one biconvex cervical; a complete series of inframarginals.¹

1. *Dermatemydidæ*.

Frontals not excluded from orbit; maxillary without connection with quadratojugal; squamosal without connection with postfronto-orbital; mesogastroid well-developed, separating completely entopubes and entoischia; number of peripherals 11; an entoplastron. Number of neuralia incomplete; the posterior pleurals not meeting in median line. *Dermatemys*.

2. *Chelydridæ*.

Frontals excluded from orbit; maxillary without connection with quadratojugal; squamosal in connection with postfronto-orbital; meso-

¹ Some species of *Kinosternon* excepted.

gastroid well-developed, separating completely entopubes and entoischia; number of peripherals 11; an entoplastron. Number of neuralia complete; posterior pleurals meeting in median line. *Chelydra*, *Macrochelys*.

3. *Staurotypidæ*.

Frontals excluded from orbit; maxillary in connection with quadratojugal; squamosal without connection with postfronto-orbital; mesogastroid well-developed, separating completely entopubes and entoischia; number of peripherals 10; an entoplastron; number of neuralia incomplete; posterior pleurals meeting on median line. *Staurotypus*, *Claudius*.¹

4. *Kinosternidæ*.

Frontals excluded from orbit; maxillary in connection with quadratojugal; squamosal without connection with postfronto-orbital; mesogastroid reduced; number of peripherals 10; no entoplastron; number of neuralia incomplete; posterior pleurals meeting on median line. *Kinosternon*, *Aromochelys*, *Goniochelys*.

III.—PLATYSTERNOIDEA.

No parieto-squamosal arch; a foramen palatinum between palate and maxillary; articular faces between sixth and seventh cervical not plane; nuchal without lower and without a lateral process; two biconvex cervicals; a complete series of inframarginals. Skull of the type of the Chelydroideae.

Platysternidæ.

Frontals excluded from orbit; maxillary in connection with quadratojugal; jugal excluded from orbit; squamosal connected with postfronto-orbital; mesogastroid well-developed, separating completely entopubes and entoischia; number of peripherals 11; an entoplastron; number of neuralia complete. *Platysternum*.

¹ In *Claudius* the post-orbital arch is exceedingly slender; the parietal sends down a process behind the postfronto orbital to join the jugal. The zygomatic arch is also very slender, but three times as broad as the postorbital; the interorbital arch is one and a half times the diameter of the orbit. The lower jaw is strongly hooked, with the symphysis larger than the diameter of orbit. Upper jaw with a small but distinct hook, each maxillary with a very sharp lateral hook. Lower side of skull as in *Kinosternon*; palate not forming a part of the alveolar surface, the posterior nares not bridged over by palate and vomer as in *Staurotypus*. Pterygoids without any ectopterygoid process.

IV.—TESTUDINOIDEA.

No parietosquamosal arch; a foramen palatinum between palate and maxillary; articular faces between sixth and seventh cervical not plane; nuchal without lower process; two biconvex cervicals; an incomplete series of inframarginals; squamosal not connected with postfronto-orbital.

Emydidae.

Quadrate open behind; number of phalanges of second and third toe of hind foot more than two; peripherals of bridge without median processes interlocking with rib-ends; rib-ends in a groove of the peripherals.

Testudinidae.

Quadrate closed behind; number of phalanges of second and third toe of hind foot never more than two; peripherals of bridge with median processes interlocking with rib-ends.

—G. BAUR, *University of Chicago.*

Two New Species of North American Testudinata.—

The following species of *Graptemys* have been described:

1. *Graptemys geographica*, Les. 1817.
2. *Graptemys pseudogeographica* (Les. MSS.), Holbrook, 1842.
3. *Graptemys oculifera*, Baur, 1890. Science, No. 405, pp. 262–263.
4. *Graptemys kohnii*, Baur, 1890. l. c.

GRAPTEMYS PULCHRA spec. nov.

For some years I have been acquainted with two specimens of a *Graptemys* preserved at the Smithsonian Institution. Both specimens were collected by Dr. T. H. Bean in Montgomery, Ala., and bear the number 8808. One of these is mentioned in Yarrow's Catalogue (Bull. U. S. Nat. Mus., No. 24, 1883), as "*Malacoclemmys geographicus*." In 1891 I received a skull and a very large living specimen from Mr. G. Kohn, of New Orleans, La., of the same species.

The coloration of the skull and neck distinguishes this species at once from all the others. The whole space between and behind the orbits is characterized by a continuous yellow figure, which sends backward on each side behind each orbit a strong process of the same color.

The head resembles that of *Graptemys kohnii*, but is more slender. The symphysis of the lower jaw is longer and the nose projecting. In all the skulls examined the jugal is excluded from the orbit, a charac-

ter not seen in the other species of *Graptemys* or *Malaclemmys*. The form of the carapace is very close to *Graptemys kohnii*; the dermal shields are very thin. It is the largest form of *Graptemys*, the shell reaching a length of over 170 mm. in straight line. The color of the shell is light olive with yellow marks on the marginals, the plastron is yellow, with some darker marks. Types: No. 8808. Smithsonian Institution, Washington, D. C. Two not full-grown specimens, collected by Dr. T. H. Bean at Montgomery, Ala.

The genus *Malaclemmys*, with the single species *M. centrata* (Bosc. MSS.) Latreille, 1801, is distinguished from *Graptemys* by the lower jaw; which is pointed and not rounded in front, and also by the condition of the quadratojugal and maxillary. In *Malaclemmys* the quadratojugal is extensively united with the maxillary; in *Graptemys* these elements are separated by the quadratojugal. The peculiar character of the jugal in *Graptemys pulchra* may perhaps justify the creation of a new genus for this species. I have given to the common "Diamond-back" the name *Malaclemmys centrata* (Bosc. MSS.) Latreille, 1801. The name *M. terrapin* Schoepff, 1793, cannot be used. The same name (*Testudo terrapen*) was given by Bonnaterre in 1789 to the *Trachemys rugosa* Shaw, 1802, of Jamaica. Already in the year 1788, however, Gmelin introduced the name *Testudo palustris* for the Jamaica tortoise; I therefore use the name *Trachemys palustris* Gmelin for the Jamaica tortoise, and that of *Malaclemmys centrata* (Bosc. MSS.) Latreille for the "Diamond-back."

KINOSTERNON LOUISIANÆ spec. nov.

Shell much like *K. pensilvanicum*, but more elongated. Skull different; the lateral hook in the middle of the maxillary very much developed and very sharp; median hook on symphysis not so strong; postorbital arch stronger than in *K. pensilvanicum*. Lower jaw very strong, ending in a sharp point; symphysis of lower jaw larger than vertical diameter of orbit. A yellow-orange stripe from snout over upper part of orbit along neck, one from the angle of the mouth. Four barbels, two just behind the symphysis near together and two farther behind more separated. Limbs and neck olive gray; a few yellow spots on top of the posterior part of head; webs more developed than in *K. pensilvanicum*. Lower jaw with greyish-yellow dots and lines. The whole coloration is very much like that in *Aromochelys tristycha* Ag., which is found together with *K. louisianæ*. seen from above these two animals resemble each other very much. They belong to different genera, but have about the same specific characters.

I have received many specimens of this species through the kindness of Mr. Gustave Kohn, of New Orleans, La. This species is the representative of *K. pensilvanicum* in Louisiana. I have never received a specimen of *K. pensilvanicum* from this locality, and believe that all the specimens which have been described as *K. pensilvanicum* from this State belong to *K. louisianæ*. Type specimen, No. 15527, Smithsonian Institution, from New Orleans, La.

—G. BAUR, *University of Chicago*.

Further Notes on American Box-Tortoises.—In Science, of April 3, 1891 (Vol. XVII, No. 426), I have given the osteological characters of three of the American Box-Tortoises: *Terrapene major* Ag., *T. carolina* L., and *T. ornata* Ag.

Through the kindness of Mr. Gustave Kohn, of New Orleans, La., I have received lately three living specimens of *T. triunguis* Ag. (*C. cinosternoides* Gray, Boul.) Besides I have received a specimen of *T. mexicana* Gray, for which I have to thank Dr. A. L. Herrera, Director of the National Museum, Mexico. Both these forms proved to be very interesting. I give now osteological characters of all the forms of *Terrapene*.

TERRAPENE MAJOR AG., 1857.

Quadratojugal well-developed, forming a complete zygomatic arch; cervicals long; upper branch of scapula considerably longer than inner branch (endo-scapula); digits with well-developed webs.

Number of phalanges in fore-foot, 2 3 3 2; in hind foot, 2 3 3 2. Southern States. Locality of type, Mobile, Ala.

TERRAPENE CAROLINA L., 1766.

Quadratojugal rudimentary, only connected with quadrate; cervicals shorter than in *T. major* Ag.; upper branch of scapula somewhat longer than inner branch (endo-scapula), but not so long as in *T. major*; digits slightly webbed.

Number of phalanges in fore-foot, 2 3 3 2 or 2 3 3 2; in hind foot 2 3 3 2.

Eastern States to Indiana.

TERRAPENE MEXICANA GRAY, 1849 (*Onychotria*).

Quadratojugal rudimentary, only connected with quadrate; cervicals probably as in *T. major*; upper branch of scapula as in *T. major*. No web between the digits and only three claws in the hind foot.

Number of phalanges in fore-foot, 2 3 3 2; in hind foot, 2 3 3 1. Mexico.

This species is readily distinct from *T. triunguis* by its oval tectiform carapace. *The additional vertebral shield between the fourth and fifth, seen in both the British Museum specimens, is present also in the specimen received from Dr. Herrera.*

TERRAPENE TRIUNGUIS AG., 1857.

Syn. *Emys kinosternoides* Gray.

Quadratojugal rudimentary, only connected with quadrate; cervicals somewhat shorter than in *T. major*; scapula as in *T. major*; no web between the digits, and only three claws in the hind foot. Shell as in *T. carolina* L.

Number of phalanges in fore-foot, 2 3 3 2 2 or 2 3 3 2 1; in hind foot, 2 3 3 2 1.

Louisiana, Arkansas, Indian Territory, Mississippi, Georgia.

TERRAPENE ORNATA AG., 1857.

Quadratojugal absent; cervicals very short; upper branch of scapula of the same length as inner branch (endo-scapula); digits without distinct web.

Number of phalanges of fore-limb, 2 2 2 2 2; of hind limb, 2 3 3 3 1.

Central States. Type from Upper Missouri, Iowa.

—G. BAUR, *University of Chicago.*